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| APPLICATION NO.                  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/028,025                       | 12/20/2001  | Robert S. Davidson   | 57278US002          | 2971             |
| 32692                            | 7590        | 09/29/2004           | EXAMINER            |                  |
| 3M INNOVATIVE PROPERTIES COMPANY |             |                      | MANOHARAN, VIRGINIA |                  |
| PO BOX 33427                     |             |                      | ART UNIT            |                  |
| ST. PAUL, MN 55133-3427          |             |                      | PAPER NUMBER        |                  |
|                                  |             |                      | 1764                |                  |

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/028,025

Applicant(s)

DAVIDSON ET AL.

Examiner

Virginia Manoharan

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KB

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### DETAILED OFFICE ACTION

The abstract of the disclosure is objected to because of the inclusion of legal phraseology often used in patent claims such as "comprising" in line 5. Correction is required. See MPEP § 608.01(b).

The specification had not been checked to the extent necessary to determine the presence of all possible minor errors e.g., typographical, grammar, idiomatic, syntax and etc. Applicants' are requested in correcting any errors of which applicants may become aware in the specification.

The disclosure is objected to because of the following informalities:

The "one or more" e.g. in claim 1, step c should be –at least one –to avoid the alternative "or" .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farin (3,638, 708) and Andersson (4,857,146).

Farin discloses a process for concentrating weak black liquor to form strong black liquor, said process comprising.: preconcentrating said weak black liquor; heating said preconcentrated weak black liquor in a heating zone under sufficient pressure; passing said preconcentrated weak black liquor, having at least one volatile component , into an evaporation zone through one or more orifices; applying pressure in said

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evaporation zone that is lower than the vapor pressure of said preconcentrated weak black liquor as it is passed into said evaporating zone, which allows for flash evaporation of at least a portion of said at least one volatile component of said preconcentrated weak black liquor from said preconcentrated weak black liquor to form strong black liquor; and collecting said strong black liquor from said evaporation zone; as claimed e.g. in claim 1.

Andersson suggests or teaches, abstract, a process wherein the liquid is first heated at a pressure which is so high that no boiling occurs at the heating temperature and further suggests the process of "...adjusting temperature in said heating zone, pressure in said heating zone and pressure in said evaporation zone to allow for evaporation of an amount of said at least one volatile component from said preconcentrated weak black liquor to form strong black liquor.; ..." as further claimed. Note col. 2, lines 40-68 through col. 3, lines 1-62.

To combine the processes of Farin and Andersson would have been obvious to one of ordinary skill in the art since both references are directed to similar processing environment; and since Andersson suggests the importance of adjusting the temperature in the process of concentrating a liquor. See col. 3, lines 25-31. See further the advantages derived from said adjustment or regulation of process parameters e.g., pressures, density and etc. at col. 3, lines 39-63.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Ekholm et al discloses a method of adjusting the sulfur balance wherein black liquor is concentrated and heat-treated.

B).Kettunen et al discloses a process and apparatus wherein the volume and temperature of the liquor are decreased & its concentration increased.

c) Ryhan and Ostman both disclose a process of evaporation.

d) Ruohola et al discloses a process for recovery of heat and chemical from agent liquid.

e) Kiiskila and Erdman both disclose a method of concentration.

f) Spannuth et al discloses a spent pulping liquor recovery process.

g) Stewart discloses the use of pressure and temperature measurement to infer process variables in a multi effect evaporator system.

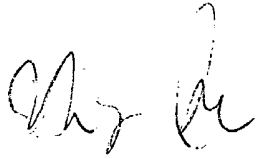
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 571-271-1450. The examiner can normally be reached on Tuesday-Friday from 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

V. manoharan/af  
9/23/ 2004

  
VIRGINIA MANOHARAN  
PRIMARY EXAMINER  
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